

CLAIMS

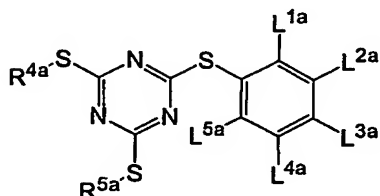
1. An optical material comprising a matrix formed of a polymer and at least a compound selected from a group denoted by a formula (1a) or formula (2a);

Formula (1a)



wherein R^{1a} , R^{2a} and R^{3a} respectively denote an optionally substituted alkyl group;

Formula (2a);



wherein R^{4a} and R^{5a} respectively denote an optionally substituted alkyl group; and L^{1a} , L^{2a} , L^{3a} , L^{4a} and L^{5a} respectively denote a hydrogen atom, a halogen atom, an optionally substituted alkyl group, an optionally substituted alkoxy group or an optionally substituted alkylthio group provided that at least two of L^{1a} , L^{2a} , L^{3a} , L^{4a} and L^{5a} denote a halogen atom, an optionally substituted alkyl group, an optionally substituted alkoxy group or an optionally substituted alkylthio group.

2. The optical material of claim 1 wherein the compound denoted by the formula (1a) or the formula (2a) having at least one fluorine atom.

3. The optical material of claim 1 used for a plastic optical fiber.

4. A polymerizable composition for producing an optical member comprising;

a polymerizable monomer composition and
at least a compound, having a different refractive index from that of the polymerizable monomer composition, which is selected from the group denoted by the formula (1a) or the formula (2a).

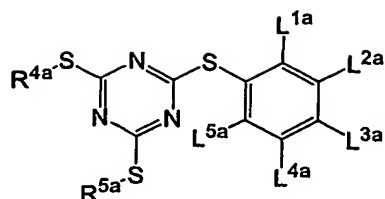
5. The polymerizable composition of claim 4 comprising a polymerization initiator.

6. An optical member produced by polymerization of a composition of claim 4, to form a region having a graded refractive index.

7. The optical member of claim 6 wherein the region having a graded refractive index along the direction from the center to the outside.

8. An optical fiber produced by drawing an optical member of claim 6.

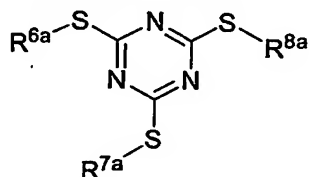
9. A compound denoted by a formula (2a);
Formula (2a)



wherein R^{4a} and R^{5a} respectively denote an optionally substituted alkyl group; and L^{1a} , L^{2a} , L^{3a} , L^{4a} and L^{5a} respectively denote a hydrogen atom, a halogen atom, an optionally substituted alkyl group, an optionally substituted alkoxy group or an optionally substituted alkylthio group provided that at least two of L^{1a} , L^{2a} , L^{3a} , L^{4a} and L^{5a} denote a halogen atom, an optionally substituted alkyl group, an optionally substituted alkoxy group or an optionally substituted alkylthio group.

10. A compound denoted by a formula (3a);

Formula (3a)

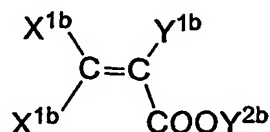


wherein R^{6a} , R^{7a} and R^{8a} respectively denote an optionally substituted branched alkyl group.

11. A polymerizable composition for producing an optical member comprising;

a polymerizable monomer composition comprising at least one polymerizable monomer denoted by a formula (1b);

Formula (1b)

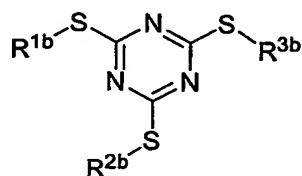


wherein X^{1b} is hydrogen (H) or deuterium (D) and two X^{1b} s may be same or different each other; Y^{1b} is H, D, fluorine (F) CH_3 , CD_3 or CF_3 ; and Y^{2b} is a substituted or non-substituted C_{1-7} alkyl group provided that Y^{2b} is a fluorine-containing C_{1-7} alkyl group substituted with 1 to 15 fluorine atoms when Y^{1b} is H, D, CH_3 or CD_3 ;

a polymerization initiator and

a compound, having a different refractive index from that of the polymerizable monomer composition, denoted by a formula (2b);

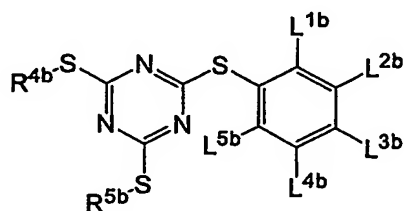
Formula (2b)



wherein R^{1b} , R^{2b} and R^{3b} respectively denote an optionally substituted alkyl group or an optionally substituted aryl group provided that all of R^{1b} , R^{2b} and R^{3b} aren't simultaneously optionally substituted aryl groups.

12. The polymerizable composition of claim 11 wherein the compound having a different refractive index from that of the polymerizable composition is selected from the group denoted by a formula (3b);

Formula (3b)



wherein R^{4b} and R^{5b} respectively denote an optionally

substituted alkyl group, L^{1b} , L^{2b} , L^{3b} , L^{4b} and L^{5b} respectively denote a hydrogen atom, a halogen atom, an optionally substituted alkyl group, an optionally substituted alkoxy group or an optionally substituted alkylthio group provided that at least two of them denote respectively a halogen atom, an optionally substituted alkyl group, an optionally substituted alkoxy group or an optionally substituted alkylthio group.

13. The polymerizable composition of claim 11 wherein the polymerizable monomer composition contains 5 to 100 weight % of the polymerizable monomer denoted by the formula (1b).

14. The polymerizable composition of claim 11 wherein the polymerizable monomer denoted by the formula (1b) has at least one C-D bond.

15. The polymerizable composition of claim 11 wherein R^{1b} , R^{2b} and R^{3b} in the formula (2b) respectively denote an alkyl group substituted by at least one fluorine atom.

16. An optical member produced by polymerization of a composition of claim 11, so as to form a region having a graded refractive index.

17. The optical member of claim 16 wherein the region having a ~~graded~~ refractive index along the direction from the center to the outside.

18. An optical fiber produced by drawing an optical member

of claim 16.